

REMARKS

Status of the Claims

Upon entry of the present amendment, claims 3-5, 7-12 and 14-22 will be pending in the application. Claims 3, 12 and 20 are currently amended. Claims 21-22 are newly added. Reconsideration and allowance of all of the pending claims are respectfully requested.

New matter is not being added to the application by way of this amendment. The amendments to claims 3 and 12 are supported by, *inter alia*, Examples 1 and 2 of the present specification. The amendment to claim 20 changed the dependency of the claim. Support for new claims 21-22 can be found in the specification at, *inter alia*, page 3, lines 19-20 as well as the Examples. Accordingly, no new matter is added and entry of this amendment is respectfully requested.

Rejections under 35 U.S.C. §102

Claims 3-5, 7, 11, 12, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Abura et al. (*J. Am. Chem. Soc.* (2003), **125**, 4149-4154). Claims 3, 4, 6, 7, 11-14, 18 and 20 are also rejected under 35 U.S.C. § 102(b) as being anticipated by Ziessel (*J. Am. Chem. Soc.* (1993), **115**, 118-127).

In the Advisory Action dated March 7, 2008, the Examiner indicated that the rejection over Abura et al. is withdrawn.

With respect to the rejection over Ziessel, Applicants respectfully assert that Ziessel does not disclose each and every element of independent claims 3 or 12. Therefore, Ziessel does not anticipate or render obvious claims 3 and 12.

The Present Invention

The present invention is based on the discovery that the metal hydride complex represented by formula (I) in claim 3 has the property that acid is produced upon excitation, and the resulting solution then becomes acidic. In the present invention, the generation of acid upon irradiation by a laser beam means that H^+ is generated through deprotonation of the metal hydride complex upon excitation. See page 5, line 16 - page 6, Scheme 1 of the present specification.

Distinctions between the present invention and the prior art

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Ziessel discloses catalysis of the homogeneous water gas shift reaction using a cationic iridium complex. Ziessel, however, completely fails to disclose the formation of an acidic solution as recited in the present claims 3 and 12. Ziessel therefore also fails to disclose all of the limitations of the present claims. Ziessel at page 125, right column, mentions irradiating the compound with light to produce an intermediate D. However, this step describes the production of H^{\cdot} . The H^{\cdot} then combines with H^+ from HCl to generate H_2 gas. There is no disclosure in Ziessel of exciting a "metal hydride complex by irradiating the complex with a laser beam until deprotonation" occurs thereby forming an acidic solution, as recited in claim 3.

Also, as described at page 126, left column, lines 12-17 of Ziessel, H_2 gas is generated by the binding of H^{\cdot} derived from the intermediate D and H^+ derived from water. These results are supported by formula (7) at page 125, right column in Ziessel.

Thus, the generation of H^+ by irradiation of the metal hydride complex in the present invention is different from the generation of H^{\cdot} in Ziessel. This difference depends on each source of light. In the present invention, H^+ can be effectively generated by irradiation with a laser beam.

In stark contrast, the source of light in Ziessel is a halogen lamp (slide projector) (page 120, right column, line 17 from the bottom). Accordingly, Ziessel fails to disclose that H^+ is generated by irradiation of the metal hydride complex with a laser beam.

Applicants therefore respectfully submit that at least claims 3 and 12, and those dependent thereon, clearly distinguish over Ziessel.

Rejections under 35 U.S.C. § 103

Claims 10 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziessel in view of Lenges et al. (*Organometallics* (2000), 19, 1247-1254). Claims 8, 9, 15 and

16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziessel in view of Amendola '643 (U.S. Patent Publication 2002/0083643). Applicants respectfully traverse each of these rejections for the following reasons. Reconsideration and withdrawal of these rejections are respectfully requested.

Distinctions between the present invention and the prior art

As discussed above, Ziessel does not disclose or suggest each and every aspect of independent claims 3 and 12. Applicants respectfully submit that Lenges et al. and Amendola '643 do not overcome the deficiencies of this reference.

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (See MPEP 2143.03). As discussed above, the combination of references fails to teach or suggest all the claim limitations of independent claims 3 and 12, and those dependent thereon. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the instant rejection is respectfully requested.

Moreover, relevant to this § 103(a) rejection, *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966) has provided the controlling framework for an obviousness analysis, wherein a proper analysis under § 103(a) requires consideration of the four *Graham* factors. One such factor includes the evaluation of any evidence of secondary considerations (e.g., commercial success; unexpected results). 383 U.S. at 17, 148 USPQ at 467. In this regard, Applicants respectfully submit that the present invention has achieved unexpected results, whereby such results rebut any asserted *prima facie* case of obviousness. See *In re Corkill*, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985). Specifically, one of ordinary skill in the art would not expect the irradiation of a metal hydride complex with a laser beam, rather than a halogen lamp, would generate H⁺.

Applicants therefore respectfully submit that at least claims 3 and 12, and those dependent thereon, clearly distinguish over Ziessel in view of Lenges et al. or Amendola '643.

Newly Proposed Claims 21-22

Applicants have newly proposed claims 21-22 in an effort to more clearly define the scope of protection owed to Applicants. Based on the reasons given above, Applicants therefore respectfully assert that claims 21-22 clearly define over the prior art of record, and an early action to this effect is earnestly solicited.

Applicants respectfully submit that all of the outstanding issues in the present application are fully resolved by the present reply and that this application is in condition for allowance. An early reconsideration and Notice of Allowance are respectfully requested.

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Gerald M. Murphy, Jr. (Reg. No. 28,977) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Dated: MAY 12 2008

Respectfully submitted,

By 

Gerald M. Murphy, Jr.

Registration No.: 28,977

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road, Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicants